

WAIS SUBTEST PERFORMANCE OF MALE ADOLESCENTS
MANIFESTING DELINQUENT BEHAVIOR

A Thesis
Presented to
The Graduate Division
Drake University

In Partial Fulfillment
of the Requirement for the Degree
Master of Arts

by
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June 1958

1958
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CHAPTER I

STATEMENT OF THE PROBLEM

The purpose of this study was to determine the subtest performance of eighteen and nineteen year old delinquents to whom the Wechsler Adult Intelligence Scale was administered and to compare the subtest scores on each subtest with those reported for normal adolescents of the same age group. An average of the scaled scores on each subtest for eighteen and nineteen year old delinquents with IQs between 90 and 109 represented the delinquent performance. The subtest scaled scores for the standardization data for the eighteen and nineteen year level represented the performance of the normal adolescent.

Importance of the study. Personality development has frequently been stressed as one of the most important aims of the family, the school, and society in general. Various tools and techniques have been employed in the evaluation of the personality traits of delinquents. In this study an attempt was made to employ a technique which, if successful, might serve as an aid in detecting individuals who possess delinquent tendencies during the early stage of adolescence. This, in turn, would contribute toward the prevention of delinquency and possible treatment of those in need.

Hypotheses. The problem involved a test of three hypotheses: (1) the male adolescent delinquent shows a higher Performance score than Verbal score, (2) the Information, Similarities, and Arithmetic subtest scores of male adolescent delinquents are significantly below average, and (3) the Picture Arrangement subtest performance of the male adolescent delinquent is significantly above average.

Defining the psychopath. Although most social scientists admit the existence of the psychopath, they have extraordinary difficulty in defining the condition. Most social scientists postulate a common core of psychopathy with which all would agree: The psychopath is an asocial, aggressive, highly impulsive person, who feels little or no guilt and is unable to form lasting bonds of affection with other human beings.¹

Defining the juvenile delinquent. The term "juvenile delinquent" is often loosely and wrongly applied. A useful description is that of Young who said:

As delinquency is unknown to the common law, we must

¹W. McCord and J. McCord, Psychopathy and Delinquency (New York-London: Grune and Stratton, 1956), p. 2

look exclusively to the statute for its legal definition. A delinquent child is commonly defined by statute as any child under a certain year of age who (1) violates a state law or local ordinance; (2) is wayward, incorrigible or habitually disobedient; (3) associates with thieves, criminals, prostitutes, vagrants, or vicious persons; (4) is growing up in idleness or crimes; (5) knowingly visits a saloon, pool room, billiard room or gambling place; (6) knowingly visits a house of ill-fame; (7) wanders about streets at night; (8) wanders about railroad yards, jumps on moving trains, or enters any car or engine without authority; (9) habitually uses or writes vile, indecent, or obscene language; (10) absents himself from home without just cause or without the consent of parent or guardian; (11) is immoral; or (12) is an habitual truant.

The inclusiveness of the definition of delinquency differs in different states mainly for the reason that some states classify a condition as delinquency which other states consider as dependency or neglect. The definition of delinquency given above is comprehensive enough to include all children who deport themselves in such a way as to injure or endanger the morals or health of themselves or others.¹

From the above definitions of the psychopath and the juvenile delinquent one can assume a degree of similarity between the two descriptions of behavior. However, one cannot assume that both types of behavior are found in either the juvenile delinquent or the adolescent psychopath.

¹Pauline V. Young, Social Treatment in Probation and Delinquency (New York: McGraw Hill Book Company, 1937), p. 7.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written in regard to delinquent behavior, the incidence and causes of delinquency and criminality, and the mental traits possessed by those individuals involved.

Literature on diagnostic testing. In regard to the use of the Wechsler Bellevue as a tool for diagnostic classification, Anastasi wrote:

Although originally designed as an intelligence test, the Wechsler Bellevue has attracted wide attention among clinicians as a potential instrument for the diagnosis of various pathological conditions. Many different techniques have been proposed for adapting the Wechsler Bellevue to such diagnostic uses. All are based essentially upon an analysis of "scatter" or variation in score from one subtest to another. The fact that the raw scores on all Wechsler Bellevue subtests are transformed into standard scores permits direct comparisons among them and has undoubtedly encouraged the development of the present over-abundance of scatter indices.

Two types of explanations have been proposed for the differential decline of scores on certain subtests. Some writers maintain that organic brain disorders, psychotic or neurotic conditions, and other pathological factors impair some intellectual functions, while leaving others relatively untouched. Such explanations imply that actual intellectual deterioration has occurred as a result of the pathological condition. According to an alternative hypothesis, the patient's disturbed emotional state is reflected directly in the test scores and accounts for the decline in performance on certain subtests, with no implication of intellectual impairment.¹

¹Anne Anastasi, Psychological Testing (New York: The Macmillan Company, 1955), pp. 329-331.

Both Wechsler and Rapaport have described what they consider to be characteristic profiles or patterns of scores for various clinical syndromes. Wechsler provided such patterns for patients with organic brain disorders, schizophrenics, neurotics, adolescent psychopaths, and mental defectives. No specific data were cited by Wechsler in support of these diagnostic patterns which were proposed on the basis of general clinical impressions. Both authors called attention to a number of "diagnostic signs" which emerge from the score patterns associated with specific syndromes.

David Rapaport wrote about the psychological rationale of the Wechsler Bellevue subtests. Concerning the Information, Similarities, Arithmetic, and Picture Arrangement subtests, Rapaport wrote:

The nature of the Information subtest allows the hope that a careful analysis of it will give a clue as to the endowment, early arrest of maturation, early setbacks, wealth of the educational environment, degree of schooling and cultural predilections, and the severity of the present maladjustment.

Successful performance on the Similarities items implies verbal concept formation. The Similarities subtest refers to verbal concepts and can be responded to merely by virtue of verbal convention, and on several levels of conceptualization.

Arithmetic is considered a test of concentration. To pass the items of this subtest, which consist of the four basic calculations, the subject must utilize patterns of arithmetic relations ingrained in him. Such focussing upon internally or externally existing patterns is concentration.

On the Picture Arrangement subtest, we submit that the subject's achievement is a reflection of his ability to anticipate the consequences of initial acts or situations,

and hence is a reflection of his planning ability. Logically one is tempted to assume that as soon as judgment is impaired, planning ability will be impaired too. This is not always the case. The psychopath seems to do very well on this subtest. It is possible that planning here becomes scheming and, as in dealing with specific life situations, the psychopath may here be quite shrewd.¹

In regard to the Information, Arithmetic, Similarities, and Picture Arrangement subtests, Anderson and Anderson wrote:

The Information subtest may be considered a test of memory development and functioning. Like vocabulary, though to a lesser degree, the wealth of information eventually acquired depends on the natural endowment and the early educational (cultural) stimulation; but information can be more easily enriched by schooling and experience. For this reason, the Information subtest is also a test of intellectual ambitiousness.

The Similarities subtest requires for successful achievement the function of verbal concept formation. Experience shows that there are, roughly, three different levels of conceptual abstraction. It is possible to derive valuable diagnostic clues from a study of the flexibility, appropriateness, and level of a subject's active conceptual thinking. Similarities refers to relationships of facts, and through this subtest, the examiner may glimpse how the subject sees his world and relates things in it to each other.

The Arithmetic subtest is a test of concentration primarily in that it requires a directed focussing of attention, an extracting of the essentials of the problem, and a working through of the relations involved. To do all of this, the subject must direct himself to the abstract continuum of numbers and the pattern of the four basic arithmetical calculations.

The Picture Arrangement subtests is a test of anticipation and visual organization. In it, several series of sketches must be arranged into meaningful sequences. Visual organization is required here for the accurate grasp of the essentials of each sketch. Organizing the sketches

¹David Rapaport, Diagnostic Psychological Testing (Chicago: The Year Book Publishers, Inc., Vol. I, 1945), pp. 130-200.

into a meaningful whole--a story--requires anticipation.

Concerning the psychopathic character disorder, Anderson and Anderson wrote:

The characteristic pattern of the psychopathic character disorder is a superiority of the performance level over the verbal, low scores on Comprehension and Similarities, and high scores on the tests of visual-motor coordination and speed. Picture Arrangement is often conspicuously high; this is especially true for shrewd "schemers" who can quickly size up a social situation and manipulate it for their own ends. If Picture Completion is high overalertness or watchfulness is probably characteristic. The over-all pattern will indicate that this is a bland, unreflective, action-oriented person whose judgment is poor, whose conceptual development is weak, but whose grasp of social situations may yet be quick and accurate. It is rare to find a psychopath with a Verbal IQ above the average range; the Performance IQ, in contrast, may reach the superior or very superior range.¹

David Wechsler described features which appear to be characteristic of the performance of the adolescent psychopath on the Wechsler Bellevue. Wechsler wrote:

The most outstanding single feature of the male adolescent psychopath's test pattern is his systematic high performance score as compared with his verbal test score. Also worthy of note is the good score frequently made by the psychopath on the Picture Arrangement test, a finding that is surprising because this test has been interpreted as measuring social intelligence. Psychopaths generally have a grasp of social situations, but they are inclined to manipulate them to their own advantage in an anti-social way. His abstract thinking is generally below average and this is frequently indicated by a low score on the Similarities test. He also tends to do poorly on Arithmetical reasoning. One feature common to both male and female adolescent psychopaths is a relatively low score on the Information subtest. This

¹H. H. Anderson and G. L. Anderson, Projective Techniques (New York: Prentice-Hall, Inc., 1951), pp. 551-570.

may be due in part to the educational retardation (truancy, etc.) often associated with adolescent delinquents, but the low information nevertheless holds up as a consistently reliable sign.¹

From the above statement by Wechsler the hypotheses in this study were evolved. On the basis of Wechsler's statement it was decided to make a comparison of the performance of a group of eighteen and nineteen year old inmates found at Iowa institutions with that of normal eighteen and nineteen year old individuals on whose performance the WAIS was standardized.

Literature on previous experiments with the Wechsler Bellevue. J. R. Vane and V. W. Eisen² in their experiment with delinquent and non-delinquent females, found a statistically significant difference between the Performance IQ and the Verbal IQ. They found a statistically significant difference on the Information subtest between the delinquent and the non-delinquent groups, the non-delinquent group being superior.

R. B. Van Vorst,³ in his experiment with delinquent boys who had been given the psychiatric diagnosis of psychopathic personality, found nothing which would justify defining

¹David Wechsler, The Measurement of Adult Intelligence (Baltimore: The Williams and Wilkins Company, 1944), p. 155.

²J. R. Vane and V. W. Eisen, "Wechsler Bellevue Performance of Delinquent and Non-Delinquent Girls," Journal of Consulting Psychology, XVIII, (1954), pp. 221-225.

³R. B. Van Vorst, "An Evaluation of Test Performance of a Group of Psychopathic Delinquents," Psychological Bulletin, XL, (1943), p. 583.

a characteristic response pattern for the psychopathic personality.

¹W. P. DeStephans, in his experiment with three hundred consecutively admitted inmates at the Ohio State Reformatory, found there was a statistically significant difference between the IQ scores on the Verbal and Performance subtests of the Wechsler Bellevue.

²Levi reported that the Wechsler test patterns of "nonpsychopathic" delinquents were similar to the patterns of "psychopathic" delinquents.

³Sloan and Cutts found that the non-delinquents and delinquents showed an equal number of psychopathic signs.

⁴Franklin, ⁵Altus and Clark obtained results consistent with Wechsler's signs.

¹W. P. DeStephans, "Are Criminals Morons?" Journal of Psychology, XXXVIII (1953), pp. 187-199.

²J. A. Levi, "A Psychometric Pattern of the Adolescent Psychopathic Personality" (Doctoral Dissertation, New York University, 1943), cited by R. Bernstein and R. J. Corsini.

³W. Sloan and R. A. Cutts, "Test Patterns of Defective Delinquents on the Wechsler Bellevue Test," American Journal of Mental Defectives, L (1943), 95-97, cited by R. Bernstein and R. J. Corsini

⁴J. C. Franklin, "Discriminative Value and Patterns of the Wechsler Bellevue Scales in the Examination of Delinquent Negro Boys," Educational and Psychological Measurement, V (1945), pp. 71-85.

⁵W. C. Altus and J. H. Clark, "Subtest Variation on the Wechsler Bellevue for two Institutionalized Behavior Problem Groups," Journal of Consulting Psychology, XIII (1949), pp. 444-447.

¹Peixotto found that the Wechsler Bellevue diagnostic patterns were not valid for a population of one hundred fifty-five cases in the Territory of Hawaii.

From their study of female delinquents, Bernstein and Corsini² reported that performance scores were higher than the verbal scores and the differential pattern of the psychopath described by Wechsler was substantiated.

¹H. E. Peixotto, "Wechsler Bellevue Subtest Patterns: A Note of Caution." Journal of Clinical Psychology, VI (1950), pp. 188-190.

²R. Bernstein and R. J. Corsini, "Wechsler Bellevue Patterns of Female Delinquents," Journal of Clinical Psychology IX (1953), pp. 176-179.

CHAPTER III

PROCEDURE

This chapter is devoted to the methodology used in this study of WAIS subtest performance of male adolescents manifesting delinquent behavior. A description of the test used, the subjects, procedure for administration of the test, and the statistical summary are presented in this chapter.

The WAIS. The test used in this study was the Wechsler Adult Intelligence Scale, often referred to as the WAIS. The WAIS is a revision of the Wechsler Bellevue test, published in 1955. The WAIS consists of eleven subtests, six of which are Verbal and five of which are Performance. The six Verbal subtests are Information, Comprehension, Arithmetic, Similarities, Digit Span, and Vocabulary. The five Performance subtests are Digit Symbol, Picture Completion, Block Design, Picture Arrangement, and Object Assembly.

Subjects. The sample consisted of 40 subjects who were inmates at the Iowa Training School for Boys (Eldora, Iowa) and the Iowa Men's Reformatory (Anamosa, Iowa). The experimental group was restricted to eighteen and nineteen year old male individuals whose IQs were between 90 and 109. There were 18 subjects from the Iowa Training School for Boys and 22 subjects from the Iowa Men's Reformatory, making a total of 40 subjects. The subjects were not required by the

experimenter or by the administration of the institutions to participate in the study. Having been asked, the subjects were allowed to decide whether they wanted to take the WAIS and take part in the study.

Procedure for testing. After the sample had been selected, each subject was contacted individually and brought to the testing room. Upon explaining to the subject the purpose of the test, the subject was asked if he would like to be included in the project. This procedure eliminated the feeling of being forced or required to participate and placed the issue on more of a voluntary basis. The WAIS was then administered to the subject and the record was filed when completed. The time for the administration of each record was approximately one and one-half hours.

Statistical analysis. The scaled score means and standard deviations of the Information, Arithmetic, Similarities, and Picture Arrangement subtests and the Verbal and Performance scores for the standardized group of 200 eighteen and nineteen year olds may be found on page 15 of the WAIS manual.¹ The experimental sample consisted of the 40 eighteen and nineteen year old male subjects from the Iowa Training School for

¹David Wechsler, WAIS Manual (New York: The Psychological Corporation, 1955), p. 15.

Boys and the Iowa Men's Reformatory. The statistical test¹ used was the chi square test.

The formula for finding chi square follows:

$$\chi^2 = \sum \left[\frac{(a - t)^2}{t} \right]$$

In this formula, a represents the actual frequencies and t the corresponding theoretical frequencies. The number of degrees of freedom for χ^2 is 1 in this case.

In addition to the chi square test, the Verbal and Performance IQ scores were compared by determining the range and mean of the Verbal and Performance intelligence quotients. The experimenter then determined the number of subjects who had a higher Performance than Verbal IQ and the number of subjects who had a higher Verbal than Performance IQ.

¹C. H. Goulden, Methods of Statistical Analysis (New York: John Wiley and Sons, Inc., 1949), p. 90.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter consists of a discussion of the results found in this investigation of WAIS subtest performance of male adolescents manifesting delinquent behavior. Discussion of the chi square test and the comparison of performance on the Verbal and Performance subtests are supplemented by the use of tables.

The chi square test. Table I indicates that the between group variance is, in a majority of the instances, so

TABLE I

THE STANDARD DEVIATIONS AND MEANS OF THE STANDARDIZATION SAMPLE AND EXPERIMENTAL SAMPLE ON THE INFORMATION, ARITHMETIC, SIMILARITIES AND PICTURE ARRANGEMENT SUBTESTS AND THE VERBAL AND PERFORMANCE SCORES OF 40 MALE ADOLESCENT DELINQUENTS

Test	Standardization Sample		Experimental Sample	
	S.D.	Mean	S.D.	Mean
Information	2.9	9.7	1.3	8.5
Arithmetic	3.0	9.5	2.2	9.3
Similarities	3.1	9.5	2.3	8.9
Picture Arrangement	2.9	10.1	2.0	10.6
Verbal	14.9	57.3	6.2	52.1
Performance	11.8	49.4	7.6	52.2

large that doubt may be cast upon the assumption that the groups of subtest scores found in this study represent a random sampling from a common variance population. In selecting the sample, randomness was one of the foremost factors in the mind of the experimenter. In view of the fact that there is a large between group variance, the use of the chi square test appears to be appropriate.

The essential results of this study of WAIS subtest performance of male adolescents manifesting delinquent behavior consist of the values of the chi squares obtained. The relation of WAIS IQs to percentile ranks may be found on page 19 of the WAIS Manual.¹ A percentile rank of 50 has an equivalent IQ of 100. The fiftieth percentile, or an IQ of 100, represents the point above and below which 50 per cent of the scores fall. Since Wechsler designates that point as the mean, the writer will also refer to it as the mean in the ensuing discussion. For the standardization sample an IQ of 100 represents both the mean and the median, i.e., the mean and median coincide. In using the chi square test, the assumption was made that the theoretical frequencies will be equally distributed above and below the mean. Since the mean coincides with the median, this assumption is plausible.

Table II, page 16, illustrates that the standardization

¹Wechsler, op. cit., p. 19.

sample has a full scale mean of 106.7. On the WAIS, the full scale score is transformed to an IQ equivalent. At the eighteen and nineteen year level a full scale score of 106.7 is equivalent to an IQ of 100. In the experimental sample, 18 subjects scored above the mean and 22 scored below the mean. The X^2 does not exceed 3.84 or 6.64. The difference is not statistically significant. Therefore, the difference between the distributions of full scale scores of the two samples is not a real difference. Since the full scale scores are directly transformed into IQ scores, there is no real difference between the distributions of IQs of the two samples. This evidence supports the assumption that the two samples belong to the same population.

TABLE II

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES ABOVE AND BELOW THE MEAN OF THE FULL SCALE SCORES ON THE WAIS FOR 40 MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
106.7	18	22	.4*

*This X^2 is not significant.

Table III shows the standardization sample has a mean of 9.7 on the Information subtest. In the experimental sample, 9 subjects scored above the mean and 31 subjects scored below the mean. The X^2 for this subtest is 12.10. The number of

degrees of freedom is one. For a degree of freedom of one, a χ^2 of 3.84 is required for significance at the 5 per cent level and 6.64 at the 1 per cent level. Since 12.10 exceeds 6.64, this difference is statistically significant at the 1 per cent level. This is in very strong support of the hypothesized situation. The experimental sample performed significantly below the performance of the standardization sample. This statistically significant difference implies that there is a real difference between the two groups on performance of the Information subtest. This firmly substantiates the hypothesis that the adolescent delinquent performs below average on the Information test.

TABLE III

THE χ^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
INFORMATION SUBTEST OF THE WAIS FOR
40 MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	χ^2
9.7	9	31	12.10*

*This χ^2 is significant at the one per cent level.

On the Arithmetic subtest, Table IV shows the standardization sample has a mean of 9.5. In the experimental sample, 19 subjects scored above the mean while 21 subjects scored below the mean. The χ^2 for this subtest is .10. Since this

does not exceed 3.84 or 6.64, this difference is not statistically significant. This is not in agreement with what was expected. It was expected that the adolescent delinquent sample would perform significantly inferior to the performance of the standardization sample. Since this was not the case, it must be concluded that there are no real differences between the two groups on performance of the Arithmetic subtest. This result does not support the hypothesis that the adolescent delinquent performs below average on the Arithmetic subtest.

TABLE IV

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
ARITHMETIC SUBTEST OF THE WAIS FOR 40
MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
9.5	19	21	.10*

*This X^2 is not significant.

On the Similarities subtest, Table V shows the standardization sample has a mean of 9.5. In the experimental sample, 16 subjects scored above the mean and 24 subjects scored below the mean. The X^2 for this subtest is 1.60. Since this does not exceed 3.84 or 6.64, this difference is not statistically significant. This result is also contrary to what was expected. It was expected that the adolescent delinquent sample would

perform significantly lower than the standardization sample on the Similarities subtest. Since this did not happen, it must be concluded that there are no real differences between the two groups on performance of the Similarities subtest. This result does not support the hypothesis that the adolescent delinquent performs below average on the Similarities subtest.

TABLE V

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
SIMILARITIES SUBTEST OF THE WAIS FOR
40 MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
9.5	16	24	1.60*

*This X^2 is not significant.

On the Picture Arrangement subtest, Table VI shows the standardization sample has a mean of 10.1. In the experimental sample, there were 20 subjects who scored above the mean and 20 subjects who scored below the mean. The X^2 for the Picture Arrangement subtest is 0. A X^2 of 0 is not significant. This is extremely unusual and strongly disagrees with what was expected. It was expected that the adolescent delinquent sample would perform significantly higher than the performance of the standardization sample. It has been

theorized that the adolescent delinquent has an above average ability to size up a social situation and that he illustrates this ability by doing very well on the Picture Arrangement subtest. This, however, was not verified and it must be concluded that there are no real differences between the two groups on performance of the Picture Arrangement subtest. This result does not support the hypothesis that the adolescent delinquent performs above average on the Picture Arrangement subtest.

TABLE VI

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
PICTURE ARRANGEMENT SUBTEST OF THE WAIS
FOR 40 MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
10.1	20	20	0*

*This X^2 is not significant.

The Verbal score is arrived at by combining the totals of the six verbal subtests. For the Verbal score, Table VII shows the standardization sample has a mean of 57.3. In the experimental sample, there were 7 subjects scoring above the mean and 33 subjects scoring below the mean. The X^2 for the Verbal score is 16.90. Since this exceeds 6.64 by a very large margin, this difference is statistically significant at

the one per cent level. This is in very strong support of the expected situation and strongly verifies the hypothesis that the adolescent delinquent performs low on verbal subtests. This is in marked contrast to the performance of the standardization sample. Since this result is strikingly significant, the chi square test indicates that there is a pronounced difference between the two samples on performance of the Verbal subtests. This firmly substantiates the hypothesis that the adolescent delinquent performs low on Verbal subtests.

TABLE VII

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
VERBAL SCORE ON THE WAIS FOR 40 MALE
ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
57.3	7	33	16.90*

*This X^2 is significant at the one per cent level.

The Performance score is arrived at by combining the totals of the five performance subtests. For the Performance score, Table VIII shows the standardization sample has a mean of 49.4. In the experimental sample, 28 subjects scored above the mean and 12 subjects scored below the mean. The X^2 for the Performance score is 6.40. This does not quite meet the requirements for significance at the one per cent level

(6.64), but the difference can be established as significant at the two per cent level. This forcibly verified the hypothesis that the adolescent delinquent performs high on the performance subtests. This is in marked contrast to the performance of the standardization sample. This statistically significant result supports the conclusion that there is a marked difference between the two samples on performance of the Performance subtests. This firmly substantiates the hypothesis that the adolescent delinquent performs above average on Performance subtests.

TABLE VIII

THE X^2 TEST OF THE SIGNIFICANCE OF FREQUENCIES
OBTAINED ABOVE AND BELOW THE MEAN OF THE
PERFORMANCE SCORE ON THE WAIS FOR 40
MALE ADOLESCENT DELINQUENTS

Standardization Sample Mean	Above Mean	Below Mean	X^2
49.4	28	12	6.40*

*This X^2 is significant at the two per cent level.

A comparison of the distribution of Verbal and Performance IQs. It was originally hypothesized that the male adolescent delinquent shows a higher Performance score than Verbal score. In order to show the relationship and the consistency with which this occurs, it was decided to make a simple comparison of Verbal and Performance IQs.

Of the 40 subjects used in this study, 33 had a higher Performance IQ than Verbal IQ and only 7 had a higher Verbal IQ than Performance IQ. This is shown in these results:

Subjects with a higher Performance IQ than	
Verbal IQ.	33
Subjects with a higher Verbal IQ than Perform-	
ance IQ	7

These results indicate the consistency with which performance was superior on the Performance subtests than on the Verbal subtests.

Table IX illustrates the difference between Performance and Verbal subtests for the 40 subjects. The Verbal intelligence quotients have a range of 83 to 110 with a mean IQ of 95.1. The Performance intelligence quotients have a range of 90 to 116 with a mean IQ of 104.0. It can be seen that the range and mean of the Verbal IQs are considerably lower than the range and mean of the Performance IQs. From this illustration there is a strong indication that performance on the Verbal subtests was somewhat inferior to the performance on the Performance subtests.

Table VII, page 21, and Table VIII, page 22, illustrated the striking differences between the performance of the two groups on each of the Verbal subtests and the Performance subtests. It was shown that the performance on Verbal subtests was significantly lower than average, and performance on the Performance subtests was significantly higher than average.

This is further evidence that the adolescent delinquent performs better on Performance subtests than on Verbal subtests.

TABLE IX

THE RANGE AND MEAN OF THE VERBAL AND PERFORMANCE INTELLIGENCE QUOTIENTS OF THE EXPERIMENTAL SAMPLE ON THE WAIS

Test	Range	Mean
Verbal	93 - 110	95.1
Performance	90 - 116	104.0

The coefficient of correlation between the Verbal and Performance scores on the standardization sample is .77. The Verbal score mean is 57.3 and the Performance score mean is 49.4. On the experimental sample the Verbal score mean is 52.1 and the Performance score mean is 52.2. The coefficient of correlation between the Verbal and the Performance scores on the experimental sample was -.08. This is in marked contrast to the expected situation. A .77 coefficient of correlation indicates a very high positive relationship between the two scores while a -.08 coefficient of correlation indicates no relationship at all. This very strongly indicates the striking difference between the performance of these two samples.

The results of these comparisons indicate that male

adolescent delinquents appear to have greater skill and facility in manual and performance than in verbal tasks. These results substantiate the hypothesis in this study that the male adolescent delinquent shows a higher Performance score than Verbal score.

CHAPTER V

SUMMARY AND CONCLUSIONS

The presented study was designed to investigate the subtest performance on the Wechsler Adult Intelligence Scale of male adolescents manifesting delinquent behavior.

The three hypotheses tested were:

1. The male adolescent delinquent shows a higher Performance score than Verbal score.
2. The Information, Similarities, and Arithmetic subtest performance of male adolescent delinquents is significantly below average.
3. The Picture Arrangement subtest performance of male adolescent delinquents is significantly above average.

A group of 40 eighteen and nineteen year old inmates with IQs between 90 and 109 were used as subjects for this experiment. Eighteen of the subjects were inmates at the Iowa Training School for Boys and twenty-two were inmates at the Iowa Men's Reformatory.

The first hypothesis, namely, that the male adolescent delinquent shows a higher Performance score than Verbal score was verified. A comparison was made of the Verbal and Performance intelligence quotients, their corresponding means and ranges, and the number of subjects scoring higher on the Performance than on the Verbal subtests. There was a significant difference at the one per cent level using the chi square test

between performance of the two groups on the Verbal subtests. There was a significant difference at the two per cent level between performance of the two groups on the Performance subtests. Consideration of the findings obtained by the methods used to test this hypothesis indicates that the male adolescent delinquent did show a higher Performance score than Verbal score. This substantiates the first hypothesis.

The second hypothesis, namely, that the Information, Similarities, and Arithmetic subtest performance of male adolescent delinquents is significantly below average was partially substantiated. There were no significant differences found on the Arithmetic and Similarities subtests. However, on the Information subtest there was a significant difference at the one per cent level. These results indicated that there were no real differences between the performance of the two groups on the Arithmetic and Similarities subtests, and there was a real difference between performance of the two groups on the Information subtest.

The third hypothesis, namely, that the Picture Arrangement subtest performance of male adolescent delinquents is significantly above average was not substantiated. There was no significant difference between performance of the two groups. Therefore, this result suggested that there was no real difference between the two groups on performance of the Picture Arrangement subtest.

The lack of statistically significant differences in

parts of this study may have been a result of experimental factors. Educational, occupational, cultural, and other background conditions may account for an individual's exceptionally high or low score on particular subtests. Since the same pattern could result from a variety of these conditions, it does not seem feasible that the WAIS should be accepted as a diagnostic tool. However, the WAIS may be used as a possible indicator to supplement other information about an individual.

This study was, in affect, a study of the efficiency of the WAIS in differential diagnosis of the adolescent psychopath. In light of the results of this study, one must be cautious in accepting the WAIS as a useful technique for differential diagnosis. Some of the results of this study favor the use of the WAIS for this purpose while other results oppose its use for this purpose. There has been a general disagreement among experimenters on this point. Some experimenters have found the WAIS useful and others have found it to be of limited value.

Since the WAIS is a relatively recent test, being published in 1955, there is a definite need for more experimentation to determine the reliability of scatter analysis as a diagnostic tool.

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